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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,555	12/09/2003	Elio Marioni	7202-42-1	5093

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EXAMINER

MCALEENAN, JAMES M

ART UNIT PAPER NUMBER

3745

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/731,555

Applicant(s)

MARIONI, ELIO

Examiner

James M McAleenan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/9/2003</u> . | 6) <input type="checkbox"/> Other: ____.  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 2, recites "its vanes" there is a lack of antecedent basis for introduces the vanes.

Claim 1, line 3, recites "can change" is indefinite language and needs to be corrected.

Claim 1, line 4, recites "power" is indefinite because as the claim is rewritten, it appears the term "power" could mean either for the motor's power, or be understood as the power that is taken to deform the blade. Clearly, the claim language is unclear and needs to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

Claim 3, lines 1-2, recite "a plastic ring from which a plurality of vanes protrude" appears to be incorrectly written. Here, the applicant is disclosing the third embodiment of the claimed invention (see Figure 10 and pages 11-12 of the disclosure), is the Applicant trying to claim the third embodiment? If not, clearly the claim language is incorrect and needs to properly reflect that which the Applicant regards as the invention.

Claim 4, lines 1-2 recite a plastic disk from which a plurality of vanes" appears to be incorrectly written. Here, the applicant is disclosing the third embodiment of the claimed invention (see Figure 10 and pages 11-12 of the disclosure), is the Applicant trying to claim the

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third embodiment? If not, clearly the claim language is incorrect and needs to properly reflect that which the Applicant regards as the invention.

Claim 7, lines 1-2, recite “said vanes are enclosed between two disk-like elements”, the applicant is disclosing the third embodiment of the claimed invention (see Figure 10 and pages 11-12 of the disclosure), is the Applicant trying to claim the third embodiment? If not, clearly the claim language is incorrect and needs to properly reflect that which the Applicant regards as the invention.

*Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoffmeier (U.S. Patent Number 5,711,657). Hoffmeier discloses a mono-directional impeller (28) (see Figure 7a and Col. 4, lines 30-33) for centrifugal electric pumps having a permanent-magnet synchronous motor, wherein the vanes (30) (see Figure 7a and Col. 4, lines 30-33) are deformable at least along part of their extension. Hoffmeier discloses vanes the can change their curvature, wherein when loaded, in one direction of rotation, such that the power required for rotation in that direction is greater than the maximum power that can be delivered by the motor (see Figures 5a-7a and Col. 4, lines 34-54). Regarding claim 2, Hoffmeier discloses the vanes being non-deformable adjacent to the rotation axis and are elastically deformable in their

peripheral region (see Figures 5a-7a and Col. 4, lines 34-54). Regarding claim 5, Hoffmeier discloses retention teeth (24) (see Figure 7a and Col. 3, lines 40-48) that alternate with the vanes and act as retention element to avoid excessive curvatures of the vanes in a wrong direction of rotation.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marioni (U.S. Patent Number 6,217,452) in view of Hoffmeier (U.S. Patent Number 5,711,657). The Marioni device discloses a mono-directional impeller (32) (see Figure 3 and Col. 5, lines 1-5) for centrifugal electric pumps having a permanent-magnet synchronous motor (see Figure 3 and Col. 4, lines 30-35) having vanes (32) (see Figure 3 and Col. 5, lines 1-5). Regarding claim 3, Marioni discloses the plastic ring from which the plurality of vanes protrude monolithically outward (see Figure 3 and Col. 5, lines 1-18), such that the ring is accommodated in a corresponding seat of a disk with ends perimetricaly on the outside of each one of the vanes. Regarding claim 4, Marioni discloses a plastic disk from which a plurality of vanes (see Figure 3 and Col. 5, lines 1-5) having a curved profile that protrudes monolithically (see Figure 3 and Col. 5, lines 1-5). Regarding claim 6, Marioni discloses an order to center the vanes with respect to the retention teeth, the ring has axial teeth to be inserted in the suitable holes of the disk (see

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Figures 3, 7, 10 and 10 and Col. 5, lines 18-64 and Col. 6, lines 38-63). Regarding claim 7, Marioni discloses the vanes being enclosed between two disk-like elements (see Figure 3 and Col. 5, lines 1-5). Regarding claim 8, Marioni discloses the vanes being rigidly coupled to the disk or ring by interlocking and or interference, ultrasonic welding or equivalent methods. Regarding claim 9, Marioni discloses a driving device constituted by a cylindrical closed enclosure rigidly coupled to the impeller and from an inner wall of which a tooth protrudes (see Figures 3, 7, 10 and 10 and Col. 5, lines 18-64 and Col. 6, lines 38-63). Marioni discloses the tooth being rigidly coupled to the impeller assembly and interacting with a tooth which protrudes from a ring which is rotatable about a shank rigidly coupled to a rotor shaft. Marioni discloses a tooth protruding radially from the shank and interacting in its rotation with the tooth of the ring whose axial protrusion is such as to affect the path of the rotation of both teeth. Marioni discloses the teeth being arranged axially so as to not interfere with each other. Regarding claim 10, Marioni discloses the enclosure being constituted by a hollow body and by a cover which is closed hermetically. Regarding claim 11, Marioni discloses the hermetic seal of the driving device being ensured by a gasket for the shaft and by the closure of the cover by ultrasonic welding or equivalent methods thereof. Regarding claim 12, Marioni discloses grease having a shock absorbing function arranged inside the hollow body. Regarding claim 13, Marioni discloses a cylindrical support supported by a bush rigidly coupled by means of connecting spokes to a ring fitted in a corresponding seat of the volute of the impeller, wherein shims are provided at one end of the cylindrical support (see Figures 3, 7, 10 and 10 and Col. 5, lines 18-64 and Col. 6, lines 38-63). Regarding claim 14, Marioni discloses the support being monolithic with the bush. However, the Marioni device does not disclose (regarding claim 1) the

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vanes being deformable at least along part of their extension. The Marioni device does not disclose (regarding claim 1) the vanes able to change their curvature, whereby when loaded, in one direction of rotation, the power required for rotation in that direction is greater than the maximum power that can be delivered by the motor. The Marioni device does not disclose (regarding claim 4) the peripheral regions of the vanes being separated from the disk along with being flexibly deformable. The Marioni device does not disclose (regarding claim 5) retention teeth that alternate with the vanes and act as retention element to avoid excessive curvatures of the vanes in a wrong direction of rotation.

However, Hoffmeier (U.S. Patent Number 5,711,657) discloses the vanes being deformable at least along part of their extension. The Hoffmeier device discloses (regarding claim 1) the vanes able to change their curvature, whereby when loaded, in one direction of rotation, the power required for rotation in that direction is greater than the maximum power that can be delivered by the motor. The Hoffmeier device discloses (regarding claim 4) the peripheral regions of the vanes being separated as well as with being flexibly deformable. Marioni discloses (regarding claim 5) retention teeth (24) (see Figure 7a and Col. 3, lines 40-48) that alternate with the vanes and act as retention element to avoid excessive curvatures of the vanes in a wrong direction of rotation. It would have been obvious to one having ordinary skill in the art, at the time applicant's invention was made, to modify the Marioni device by incorporating the impeller vanes as taught by Hoffmeier, for the purpose of having constant flow rates with no noise increases as claimed by Applicant's claimed invention.

### **PRIOR ART**

The prior art made of record but not relied upon is considered pertinent to applicant's disclosure and consists of 4 patents.

Woodard et al. (U.S. Patent Number 6,638,011) is cited to show similar impeller features as claimed by Applicant's invention.

Blakeslee et al. (U.S. Patent Number 4,755,105) is cited to show similar impeller features as claimed by Applicant's invention.

Marioni et al. (U.S. Patent Number 4,861,240) is cited to show similar impeller features as claimed by Applicant's invention.

Marioni et al. (U.S. Patent Number 6,217,452) is cited to show similar impeller features as claimed by Applicant's invention.

### **CONTACT INFORMATION**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M McAleenan whose telephone number is 703-308-2827. The examiner can normally be reached on M-F 8:30-4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on 703-308-1044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*J. M. McAleenan* 12/16/04

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